



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,427	03/31/2004	Craig I. Walker	2936.WSG.PT	5711
26986	7590	08/10/2005	EXAMINER	
MORRISS O'BRYANT COMPAGNI, P.C. 136 SOUTH MAIN STREET SUITE 700 SALT LAKE CITY, UT 84101			NGUYEN, NINH H	
			ART UNIT	PAPER NUMBER
			3745	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

### Office Action Summary

Application No.

10/814.427

<b>Applicant(s)</b>	
---------------------	--

WALKER ET AL.

Examiner

Ninh H. Nguyen

Art Unit	
----------	--

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-20 is/are rejected.
- 7) ☒ Claim(s) 14 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4, 6, 7, 10-13, 15, 16, 18, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee (5,628,616).

Lee discloses an impeller for a centrifugal pump (Fig. 4), comprising at least one vane A extending radially in length from a central axis of the impeller to an outer peripheral edge of the impeller, the at least one vane A having an outer terminal end having an outwardly extending portion being convex-like in shape (shown at B);

wherein the impeller further comprising at least one shroud 36 having a peripheral edge defining the peripheral edge of the impeller, the at least one vane extending outwardly from the shroud (Fig. 4);

wherein the outwardly extending portion has a terminus and a radius  $R_v$  (see marked up Fig. 4 at the end of this Office Action) measured from the central axis of the impeller to the terminus, and wherein the shroud has a radius  $R_s$ , measured from the central axis to the peripheral edge, wherein  $R_v$  is greater than  $R_s$ ;

wherein the outer terminal end of the at least one vane further comprises a portion having a radius  $R_B$  where  $R_B$  is equal to  $R_s$  (see marked up Fig. 4);

Art Unit: 3745

wherein the outwardly extending portion has an outer edge which is formed by the intersection of at least two lines (Fig. 4); and

wherein the at least one vane A has a width  $W_v$  (see marked up Fig. 4) and wherein the outwardly extending portion has a width  $W_p$  where  $W_p$  is equal to  $W_v$ .

3. Claims 1-5, 7, 9, 11, 13, 15, and 17- 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Higashimori et al. (6, 877,955).

Higashimori discloses an impeller (Fig. 7B), comprising at least one vane 3 extending radially in length from a central axis of the impeller to an outer peripheral edge of the impeller, the at least one vane 3 having an outer terminal end having an outwardly extending portion being convex-like in shape;

wherein the impeller further comprising at lest one shroud 1 having a peripheral edge defining the peripheral edge of the impeller, the at least one vane extending outwardly from the shroud (Fig. 7B);

wherein the outwardly extending portion has a terminus and a radius  $R_v$  (see marked up Fig. 7B at the end of this Office Action) measured from the central axis of the impeller to the terminus, and wherein the shroud has a radius  $R_s$ , measured from the central axis to the peripheral edge, wherein  $R_v$  is greater than  $R_s$ ;

wherein the outer terminal end of the at least one vane further comprises a portion having a radius  $R_B$  where  $R_B$  is equal to  $R_s$  (see marked up Fig. 7B);

wherein the outwardly extending portion is arcuate

Art Unit: 3745

wherein the at least one vane 3 has a width  $W_v$  (see marked up Fig. 7B) and wherein the outwardly extending portion has a width  $W_p$  where  $W_p$  is equal to  $W_v$ .

4. Claims 1-4, 6-8, 10-13, 15, and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Mayne (3,221,398).

Mayne discloses an impeller (Figs. 1, 2) comprising at least one vane 10 extending radially in length from a central axis of the impeller to an outer peripheral edge of the impeller, the at least one vane 10 having an outer terminal end having an outwardly extending portion being convex-like in shape (Fig. 2);

wherein the impeller further comprising at least one shroud 50 having a peripheral edge defining the peripheral edge of the impeller, the at least one vane extending outwardly from the shroud (Fig. 2);

wherein the outwardly extending portion has a terminus and a radius  $R_v$  (see marked up Fig. 2 at the end of this Office Action) measured from the central axis of the impeller to the terminus, and wherein the shroud has a radius  $R_s$ , measured from the central axis to the peripheral edge, wherein  $R_v$  is greater than  $R_s$ ;

wherein the outer terminal end of the at least one vane further comprises a portion having a radius  $R_B$  where  $R_B$  is equal to  $R_s$  (see marked up Fig. 2);

wherein the outwardly extending portion has an outer edge which is formed by the intersection of at least two lines (Fig. 2);

wherein the at least one vane 10 has a width  $W_v$  (see marked up Fig. 2) and wherein the outwardly extending portion has a width  $W_p$  where  $W_p$  is equal to  $W_v$ ; and

Art Unit: 3745

wherein the area of the outwardly extending portion is from about 30% to about 85% the area defined by  $W_v(R_v - R_B)$  ( judging from Fig. 2).

***Allowable Subject Matter***

5. Claims 14, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Prior Art***

The prior art made of record but not relied upon is considered pertinent to applicant's disclosure and consists of 1 patent.

Navelsaker (3,904,306) is cited to show a pump impeller having convex peripheral edge.

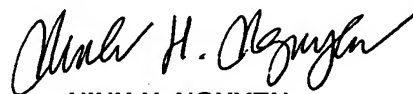
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Ninh Nguyen whose telephone number is (571) 272-4823. The examiner can be normally reached on Monday-Friday from 7:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look, can be reached at (571) 272-4820. The fax number for this group is (571) 273-8300.

Art Unit: 3745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, please go to <http://pair-direct.uspto.gov> or contact the Electronic Business center (EBC) at 866-217-9197 (toll-free).

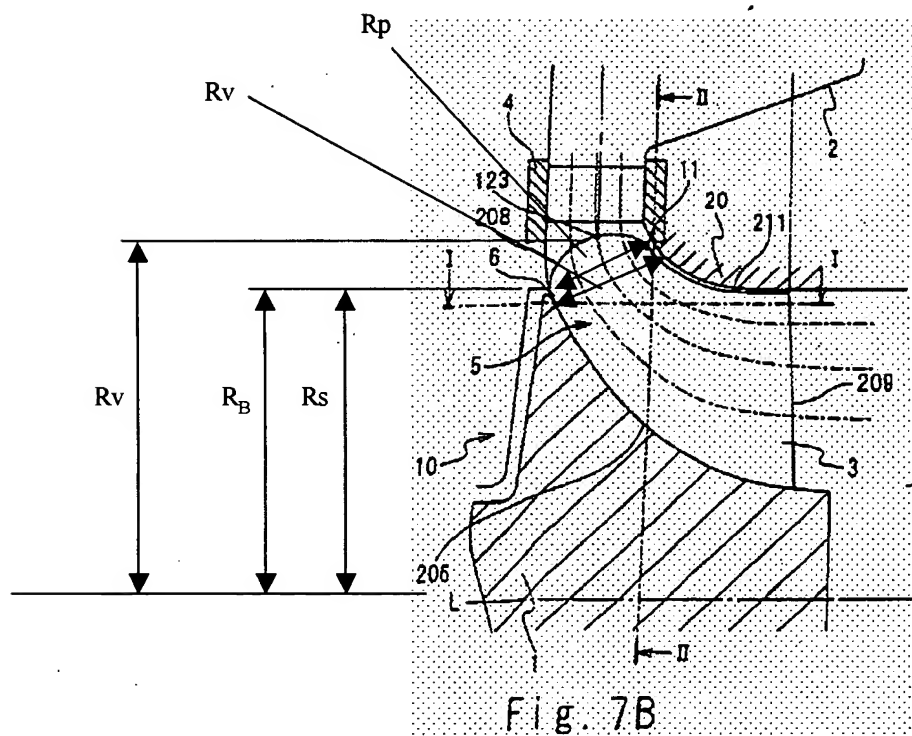


**NINH H. NGUYEN**  
**PRIMARY EXAMINER**

Nhn  
August 5, 2005







Dec. 7, 1965

R. A. MAYNE

3,221,398

